Note: The Attached Example Brief Provides an Order/Level of Detail Desired for C-RAM Test Planning and Readiness Reviews. If You Need Assistance In Preparing Your Brief, Contact Your Designated C-RAM POC

System X
Test Plan
Briefing
(Example Of Required Inputs)

USE YOUR OWN LOGOS

6 April 2006

Outline

- **System Description**
- **System Status**
- **Test Objectives**
- **Scope Of Activities**
- **Measures Of Effectiveness (MOEs)**
- **Integration To C-RAM**
- **Test Matrix**
- **Scenarios**
- **Test To MOEs Cross Walk**
- **Data Collection Summary Form**
- **Test Schedule**
- **Support Personnel**
- **Test Responsibilities**
- **Equipment Requirements**
- **Contractor/Vendor Data Collection**
- **Data Collection & Reduction Requirements For YPG**
- **Site Preparation/Integration Requirements**
- **ROM**
- **System X Standards**
- **Compliance to C-RAM Capabilities Production Document, Increment 1**
- **Other Contractor/Vendor Suggestions**

System Description

- Provide A Detail Technical Description Of Your System
- Provide, If Applicable, A Digital Color Photograph For Use In C-RAM Briefings

System Status

- Provide Recent Demonstrated Performance Capabilities (Range, Sensitivity, Slew Time, etc)
- If You Have Participated In Past C-RAM Demonstrations, When, and What Hardware And Software Upgrades/Enhancements Have Been Made Since The Last Demonstration?
- Is Your System Sufficiently Mature For An ATEC Capabilities & Limitation (C & L) Assessment?
- Describe Your Current Fielding Status, Including Number Of Assets Available And Production Lead Times
- POC For Material Release Exercise (MRE)

Test Objectives

- Examples:
  - Automated and Manual “Slew to POO/POI”
    - (Sensor Slews to AMDWS POO/POI Tasking)
  - Automated and Manual Slew to “Look-To”
    - (Sensor Slews to eTASS Grid Tasking)
  - Provide Refined Target Coordinates from GCS to eTASS
  - Provide Streaming Analog Video and Telemetry to eTASS
  - Target Detection/Acquisition/Identification Once “Slewed” (Human Interface)
  - Station Time

Scope Of Activities

- Examples:
  - Pre-Demo Activities - Include testing at your facility
  - Three Phases at YPG:
    1. Setup and Checkout of Hardware/Software Integration Pilot Tests
    2. Pilot Tests: Detection/Identification of RAM Locations
    3. Record Tests: Detection/Identification of RAM Locations
  - Phase 1: Setup & Checkout
    - Integration of eTASS, AMDWS, & GCS Through COT
    - Testing of Hardware/Software Integration
  - Phase 2: Pilot Testing (Against Actual Firing)
    - Detection/Identification of Intercept Mortar/Rocket Positions with Timing
    - Collect Data on Detection Ranges/Altitudes of Threat Positions
    - Day & Night Data Collection Against Various RAM Locations
  - Phase 3: Record Testing (Actual & Mock Firing Positions)
  - Post-Demo Activities - Your Assessment Of System Performance

MOEs (C-RAM)

Examples: Respond Pillar

SLEW TO CUE

- Accuracy:
  - Compare the Slewed-to-Cue SE Position to the Position Provided by AMDWS or eTASS (AMDWS POO or the Correlated POO from FAADC2, or the eTASS “Look-To” coordinate)
- Timeliness:
  - After Receipt of Cue from GCS, Measure Time to Automatically Slew Sensor to the Cue

DETECTION/ACQUISITION/IDENTIFICATION

- Accuracy:
  - Range and Altitude at Receipt of POO
  - Range and Altitude Target Detected
  - Range and Altitude Target Identified
- Timeliness:
  - Time from Receipt of POO Coordinates at GCS to Target Detection by SE Operator
  - Time from Target Detection to Target ID
  - Time from Target ID to Start of Orbit Around Target
- Video:
  - Reliability of SE down linked video for Battle Commander/Staff decisions (Detection, Identification, Authorization to Engage)

REFINED TARGET INFORMATION (Vignettes to Collect Data for Engagement by Other Fire Support Systems)

- Accuracy:
  - SE Target Coordinates Verse Surveyed Location
  - SE Target Coordinates Verse Original Cue’d Target Coordinates
- Timeliness:
  - Time to Transmit Refined Coordinates from SE to eTASS

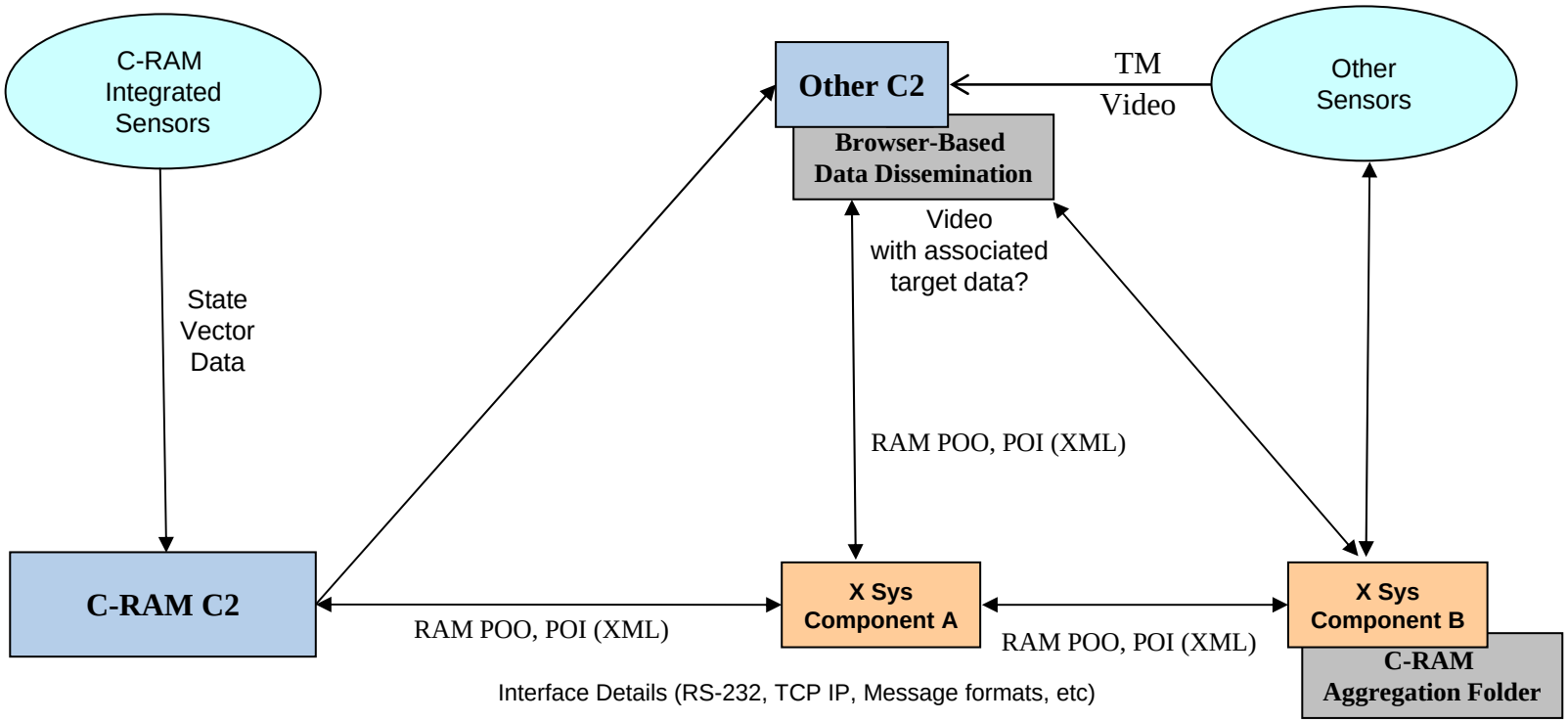
TARGET TRACKING

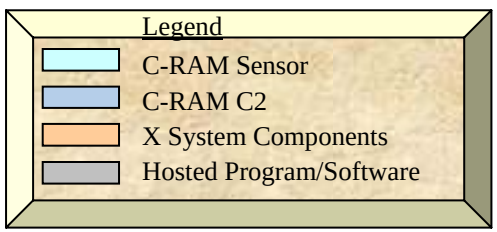
- Capability:
  - SE Maintains Track of Stationary or Moving Target (Personnel/Vehicle)

STATION TIME

- Endurance
  - ·Time From Launch to Capture, Standard Mission Profile or fuel consumption rate

C-RAM – X System Integration Effort





System Acronym Glossary

C-RAM -- Counter Rocket Artillery & Mortar
X-Sys – X system
POO – Point of Origin
POI -- Point of Impact
RAM – Rocket, Artillery, Mortar Target

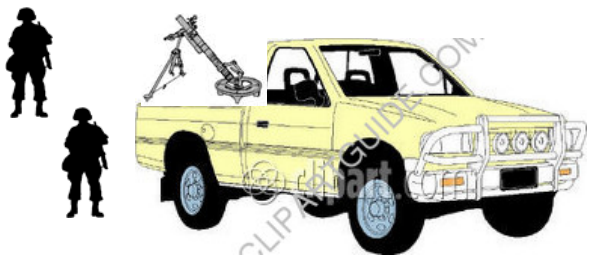
Test Matrix

SE Scenario	Target	Pilot-Day	Pilot-Night	Record-Day	Record-Night	Threat Personnel/ Mannequins	Threat Transport	VS	Comments
1	Live 60 mm	2	0	2	0	2	No	NA	Conduct During Spotting Round Firings
2	Live Rockets (size?)	2	0	2	0	2	Yes	NA	Conduct During Spotting Round Firings Parked in Vicinity of Launcher
3	Live 120 mm	2	0	2	0	2	No	NA	Conduct During Spotting Round Firings
4	Live81 mm	2	0	2	0	2	No	NA	Conduct During Spotting Round Firings
5	Mock 60 mm	2	2	6	6	2	No	NA	
6	Mock Rockets (size?)	2	2	6	6	2	Yes	NA	Parked in Vicinity of Launcher
7	Mock 120 mm	0	0	6	6	2	No	NA	
8	Mock 81 mm	0	0	6	6	2	No	NA	

Live Fire Scenarios

- **Mortar Position In Open**

- **Mortar On Halted Threat Vehicle**



Note: Each Scenario: 1 Day & 1 Night

Test-to-MOE Crosswalk

	REAL MORTARS	MOCK MORTARS	LIVE FIRE
SLEW TO CUE			
·COMPARE THE SLEWED TO CUE POSITION TO THE POSITION PROVIDED BY THE GCS	X	X	X
·AFTER RECEIPT OF CUE FROM GCS, MEASURE TIME TO AUTOMATICALLY SLEW EO/IR SENSOR TO THE CUE	X	X	X
DETECTION/ACQUISITION/IDENTIFICATION 4			
·TIME FROM RECEIPT OF POO COORDINATES AT GCS TO TARGET DETECTION BY OPERATOR	X	X	X
·TIME FROM TARGET DETECTION TO TARGET ID	X	X	X
·TIME FROM TARGET ID TO START OF ORBIT AROUND TARGET		X	X
·RANGE AND ALTITUDE AT RECEIPT OF POO	X	X	X
·RANGE AND ALTITUDE TARGET DETECTED	X	X	X
·RANGE AND ALTITUDE TARGET IDENTIFIED		X	X
TARGET TRACKING			
·SYSTEM X MAINTAINS TRACK OF STATIONARY OR MOVING TARGETS (PERSONNEL/VEHICLE)		X	X
STATION TIME			
·TIME FROM t/o CAPTURE, STANDARD MISSION PROFILE OR FUEL COMSUMPTION RATE	X	X	X
REFINED TARGET INFORMATION (C-RAM VIGNETTES FOR OTHER FIRE SUPPORT WEAPONS)			
·TARGET COORDINATES VERSUS SURVEYED LOCATION	X	X	
·TARGET COORDINATES ORIGINAL CUE'D TARGET COORDINATES	X	X	

Test Schedule

- Provide Inputs/Recommendation For Test Schedule Based On Your Scope Of Activities
  - Include Pre- And Post-Demo Activities
  - Include Pre-Demo Readiness Testing For Government Observation

Support Personnel

- CONTRACTOR/VENDOR
  - Project Lead/Operator
  - Vehicle Operator
  - Recovery/Maintenance/Network Technician
- TRADOC
  - Test OIC
  - Data Collection Observers
- PM C-RAM
  - TAC: Battle Manager/Assistant Battle Manager
- YPG
  - Electrician, Generator Technician, etc.

Test Responsibilities

- CONTRACTOR/VENDOR
  - Coordination with YPG Test Director and Other C-RAM Team Members.
  - Duties Include: (LIST DUTIES)
- BATTLE MANAGER
  - Prioritize Targets & Provide Threat Location Coordinates to SYSTEM X
  - Command SYSTEM X Crew to Execute Search for Target
  - Signal Mission Complete

Support Requirements

- YPG
  - System X Site Preparations
    - Power, Elevation, Access, Fiber/Wireless link, Commo
  - Administrative Communications Between S-15 Compound & System X Site
  - Mock Mortar Tubes, Rocket Launchers
  - Mannequins
  - Threat Scenarios for Live Fire
  - Range Support Vehicles
  - Range/Tower Radios
  - IRIG Timing
  - Photos &/or Videos of Equipment Setup (Pre- and Post-Shot) &/or Screen Shots
- CONTRACTOR/VENDOR
  - System X with EO and or IR Sensors, Associated TGCS with Uplink/Downlink Equipment
  - Remote Video Displays
  - Instrumentation for Video and Voice Recording of Missions for Forensic Playback and Mission Reconstruction
  - Translator for eTASS, AMDWS, and AFATDS (through AXE 1.4)
  - RF Emissions Management (System X emissions and sensitivities to others' emissions)
- PM C-RAM
  - C2 Integration Assistance
  - C2 Space in EO Cell, JDOC, TAC
  - Office Space, Telephones, Computer hookups, Refrigerator
  - Remote Video Displays
- OTHER
  - DVCAM Video Tapes
  - Data Collection Requirements
  - Portable Radios

Data Collection
(Provided By Contractor/Vendor)

- Video recording of the sensor display to include ranges, altitudes, and associated GPS time (not corrected for UTC)
- Video recording of the operators voice, synchronized with the sensor video to capture SYSTEM X crew verbal responses
- Video recorders also record computer synthesized voice prompts from the GCS
- Snapshots of targets the operator chooses to image
- XML log file, containing time tagged tasking, vehicle position, sensor point of interest, etc.

Data Collection & Reduction (Provided by YPG Test)

- Video & digital recordings of the Air Vehicle Operator and Mission Payload Operator Laptops to Include Ranges, Altitudes with Associated IRIG B Timing. (Will Be Used to Play Back Mission and Record Events Such as Detection, Identification, Engagement Authority, Dispense Command, Actual Drop Event)
- Voice Recorders with Timing to Capture Battle Commander and SYSTEM Crew Verbal Responses
- Live Fire Targets (Before and After)
  - Still Photographs, Video of Target Area and Damage
  - Measurements of Miss Distance, if any (Feet)

ROM BUDGET

- Contractor Format
- Include Pre- And Post-Demo Costs
- Assume 30-Calender Days At The YPG Test Site
  - Setup & Integration through Teardown & Shipment

Standards

- A List Of The Standards That Apply For Your System Is Required For The Increment 2 Capabilities Production Document (CPD) – Department Of Defense Architectural Framework (DODAF)
- A List Of Applicable Standards Can Be Found At: https://disronline.disa.mil.
- If You Have Trouble Accessing Standards, Please Contact: bill.arnold@cas-inc.com Or Call 256-922-4190
- Provide The List In Two Categories:
  - Internal: Standards Used For Design Of Your System
  - External: Standards Which Apply For Integration Into The C-RAM System

Data Collection Summary Form

SCENARIO NUMBER: SE 5 DAY, RECORD 1 **Example: Test Matrix Scenario 5, Day, Record Run 1**

AMDWS/eTASS POO COORDINATES_____

SURVEYED TARGET COORDINATES_____

SE REPORTED COORDINATES @ SLEW TO CUE COMPLETE_____

Description	Time (hr-min-sec)	Ground Range From SE To Surveyed Coordinates (m)	Altitude (AGL-FT)
AMDWS/eTASS Sends Cue to SE GCS			
"Slew to Cue" Completed By SE			
Time, Range and Altitude of SE @ Receipt of Cue (POO) From GCS			
Time, Range and Altitude of SE @ Target Detection			
Time, Range and Altitude of SE @ Target ID Confirmation By Battle Captain/Staff			
Time, Range and Altitude of SE @ Start of Orbit Around Target			

Live Fire Targets

Attach Field Notes and Sketches:
Still Photographs, Video of Target Area
Damage (Before & After)
Miss Distance, If Any

COMMENTS:_____
_____
_____
_____

FUEL CONSUMPTION RATE _____
(T/O TO LANDING)

COMPLIANCE TO CAPABILITIES PRODUCTION DOCUMENT (CPD), INCREMENT 1

- PLEASE PROVIDE STATUS/COMMENTS TO THE FOLLOWING PARAGRAPHS TO THE CPD
  - Para 6c Net Ready (KPP)
  - Para 6d (1) Sustainability/Reliability
  - Para 6d (3) Weapon System Interfaces
  - Para 6d (5) Power
  - Para 6d (6) Mobility
  - Para 10 a Electromagnetic Environmental Effects
  - Para 10 b Spectrum Supportability
  - Para 13 b Transportability
  - Para 13 c Key Logistics Criteria
  - Para 13 d Human System Integration Engineering
  - Para 14 b Natural Environmental Conditions
  - Para 14 c Human Factors